CHAPTER 4

WASTEWATER

4-1. SCOPE

4-1.1 The overall objective of the JEGS for wastewater is to protect human health and the natural environment. This Chapter contains criteria to control and regulate discharges of wastewaters into the public water areas. This includes, but is not limited to, domestic and industrial wastewater discharges and pollutants from indirect discharges. Septic tanks or on-site treatment processes authorizedfor use in Japan are not addressed unless they discharge to the public water areas. Stormwater drainage and runoff have also been excluded.

4-1.2 USFJ installations will typically operate by using USEPA accepted analytical methods, or other methods approved by COMUSJAPAN. Approved Japan and /or other internationaly recognized methods will be used for those contaminants where no USEPA approved method exists.

4-1.3 Whenever possible, the collection of samples from a point of entry into Japanese public waters should be coordinated with local host nation agencies to insure that comparable samples are drawn.

4-1.4 COMUSJAPAN will act as the interface between the U.S. Government (USG) and the Government of Japan (GOJ) for water pollution complaints from local nationals and host nation authorities. However, whenever possible, pollution complaints will be resolved at the local level first. COMUSJAPAN will be informed of any complaint regardless of whether or not it is resolved locally as well as any significant incident involving violation of the standards listed in this Chapter.

4-2. DEFINITIONS

4-2.1 Average Daily Concentration. Average daily concentration is an average of three measurements a day including those at the start and end of operation for the day. In the case of 24-hour operation, three measurements including one at night are required.

4-2.2 Average Flow Rate. Wastewater flow rate measurements of once a day and more than three days a week are required to obtain an average flow rate. In the absence of flow meters at the wastewater treatment plant, average flow rate may be obtained from water intake rates of the water supply system.

4-2.3 Biological Oxygen Demand (BOD). BOD_5 is the measure of the pollutant parameter, as measured in 5 days. It expresses the rate at which organisms use the oxygen in wastewater while stabilizing decomposable organic matter under aerobic conditions.

4-2.4 Chemical Oxygen Demand (COD). COD is a measure of the oxygen consuming capacity of the organic matter present in wastewater.

4-2.5 Direct Discharge. Any "discharge of pollutants" to the public water areas from DWTP, IWTP, or from other than indirect discharges.

4-2.6 Discharge of a Pollutant. Addition of any pollutant or combination of pollutants to the public water areas from any "point source".

4-2.7 Domestic Wastewater Treatment Plant (DWTP). Any DOD or host nation facility designed to treat wastewater before its discharge to the public water areas and in which the majority of such wastewater is made up of domestic sewage.

4-2.8 Effluent Limitation. Any restriction imposed on quantities, discharge rates, and concentrations of pollutants that are ultimately discharged from point sources into the public water areas.

4-2.9 Grab Sample. A single sample taken from a specific point and time.

4-2.10 Indirect Discharge. An introduction of pollutants from specific facilities, process wastewater or from other regulated facilities to a DWTP and associated collection system. There are two categories of indirect discharges: indirect discharges to a DOD DWTP or indirect discharge to a host nation DWTP.

4-2.11 Industrial Wastewater Treatment Plant (IWTP). Any DOD facility designed to treat process wastewater before its discharge to the public water areas other than a DWTP.

4-2.12 Maximum Daily Discharge Limitation. The highest allowable daily discharge.

4-2.13 pH. An abbreviation of the French term "*pouvoir hydrogene*", literally "hydrogen power." It is a measure of the acidity or alkalinity of a solution. Mathematically it is the negative log to the base ten of the hydrogen ion concentration. In water, the pH values range from 0 (very acidic) to 14 (very alkaline).

4-2.14 Point Source. Any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, or rolling stock; but not including vessels, aircraft or any conveyance that merely collects natural surface flows of precipitation.

4-2.15 Pollutant. Includes, but is not limited to, the following: dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into water.

4-2.16 Process Wastewater. Any water which during manufacturing or processing, comes into direct contact with, or results from the production or use of, any raw material, intermediate product, finished product, by-product, or waste product.

4-2.17 Public Water Areas. These refer to surface water areas, i.e., rivers, lakes, harbors, coastal areas, other water areas offered for public use, public water channels connected thereto, irrigation waterways and other public waterways, excluding municipal sewers and river basin sewers.

4-2.18 Regulated Facilities. Those facilities for which criteria are established under this Chapter, such as DWTP, IWTP, or industrial discharges.

4-2.19 Stormwater Discharge. Discharge characterized by intermittent flow and due solely to a precipitation event.

4-2.20 Total Suspended Solids (TSS). Total suspended non-filterable solids (porosity size: 1mm).

4-2.21 Donut. The equipment used to process ship bilge water and separate oil from bilge water is a part of the operations of a U.S. Naval vessel as stated in Section 1-2.a. Donut is thereby exempt from this Chapter.

4-3 CRITERIA

4-3.1 Direct Discharge to Public Waters (excluding stormwater discharge). The water pollution effluent standards are based on the discharge volume and the nature of the wastewater.

a. Discharge from DWTPs will be monitored for items in Table 4-1 quarterly and for parameters in Table

4-2 on variable time cycles based on the discharge volume in Table 4-3.

b. If any portion of the total discharge volume is derived from non-domestic sources or process or IWTP wastewater, the parameters in Table 4-4 will be monitored quarterly in addition to the parameters of Tables 4-1 and 4-2.

c. Allowable non-stormwater discharges to the storm drain system from properly maintained secondary containment structures will be monitored once per quarter.

4-3.2 Indirect Discharges (discharge of pollutants to DWTPs and associated collection systems). The monitoring requirements and criteria will differ based on whether the indirect discharge is into a DOD treatment plant, or a Japanese treatment plant.

a. Monitoring requirements of indirect discharge into a DOD operated DWTP or IWTP will be determined by the individual services or at the discretion of the installation commander.

b. Monitoring of indirect discharge into a Japanese DWTP or IWTP will be done quarterly. The effluent limits are given in Table 4-5.

4-3.3 If the allowable limits given in Tables 4-1,4-2, 4-4, or 4-5 are exceeded, COMUSJAPAN will be informed within 14 days of receipt of laboratory results.

4-4 POLLUTION PREVENTION GUIDELINES

4-4.1 The discharge of solid or viscous pollutants that would result in an obstruction to the domestic wastewater treatment plant flow is prohibited.

4-4.2 The discharge of wastewater with a closed cup flash point of less than 60^{o}C (140^{o}F) is prohibited.

4-4.3 The discharge of wastes with any of the following characteristics is prohibited:

a. A liquid solution which contains more than 24% alcohol by volume and has a flash point less than 60^{o}C (140^{o}F)

b. A non-liquid which under standard temperature and pressure can cause a fire through friction

c. An ignitable compressed gas

d. An oxidizer, such as peroxide

4-4.4 The discharge of any of the following wastes is prohibited:

a. Wastes which are normally unstable and readily undergo violent changes without detonating

b. Wastes which react violently with water

c. Wastes which form explosive mixtures with water or form toxic gases or fumes when mixed with water

d. Cyanides or sulfide waste that can generate potentially harmful toxic fumes, gases, or vapors

e. Wastes capable of detonation or explosive decomposition or reaction at standard temperature and pressure

f. Wastes which contain explosives with hazardous material characteristics

g. Wastes which produce any toxic fumes, vapors, or gases with the potential to cause safety problems or harm to persons or animals

4-4.5 Discharge of pollutants that have the potential to be structurally corrosive to the DWTP is prohibited. In addition, no discharge of wastewater below a pH of 5.0 is allowed, unless the DWTP is specifically designed to handle this type of wastewater.

4-4.6 The discharge of oil and grease which can pass through or cause interference to the DWTP, is prohibited.

4-4.7 Activities or installations that have a significant potential for spills or batch discharges (slugs) will develop a slug prevention plan. Each plan must contain the following minimum requirements:

a. Description of discharge practices, including non-routine batch discharges

b. Description of stored chemicals

c. Plan for immediately notifying the DWTP of slug discharges and discharges that would violate prohibitions under this Chapter, including the contents and quantities of the slug, and procedures for subsequent written notification to Headquarters/J42E within 5 days

d. Necessary practices to prevent accidental spills. This includes proper inspection and maintenance of storage areas, handling and transfer of materials, loading and unloading operations, control of plant site runoff, and worker training.

e. Proper procedures for building containment structures or equipment

f. Necessary measures to control toxic organic pollutants and solvents

g. Proper procedures and equipment for emergency response and any subsequent plans necessary to limit damage suffered by the treatment plant or the environment

4-4.8 The discharge of trucked and hauled waste into the DWTP, except at locations specified by the DWTP, is prohibited.

4-5 PERSONNEL QUALIFICATIONS

Personnel engaged or employed in operation and maintenance of wastewater facilities will meet certification and/or training requirements as developed by each DOD component and approved by COMUSJAPAN.

4-6 FLOW MEASUREMENTS

Flow measurements should be obtained from the flow measurement devices. In the absence of flow meters, average flow rate may be obtained from water intake rates of the water supply system. The method of estimation should be documented.

4-7 SLUDGE DISPOSAL

All sludge produced during the treatment of wastewater will be disposed of under Chapter 6, Hazardous Waste, or Chapter 7, Solid Waste, as appropriate.

TABLE 4-1
FIXED QUARTERLY MONITORING REQUIREMENT STANDARDS FOR ALL DIRECT DISCHARGE WASTEWATER FLOWS

Parameter	Unit	Allowable Limits
Phenol	mg/L	5
Copper	mg/L	3
Zinc	mg/L	5
Iron	mg/L	5
Manganese	mg/L	10
Chromium	mg/L	2
Fluorine Compounds	mg/L	15
Coliform Colony	PC/cm^3	(3000)

Allowable limits outside parenthesis are for a grab sample, values inside parenthesis are for a daily average.

TABLE 4-2
VARIABLE FREQUENCY MONITORING REQUIREMENT (SEE TABLE 4-3)
EFFLUENT STANDARDS FOR ALL DIRECT DISCHARGE WASTEWATER FLOWS

Indicators		Unit	Allowable Limits
pH	Sea areas	pH units	5-9
	Other areas		5.8-8.6
BOD_5	Seas and lakes	mg/L	N/A
	Other Areas		160(120) (See Note 2)
COD	Seas & lakes	mg/L	160(120)
	Other areas		N/A
TSS		mg/L	200(150) (See Note 2)
Normal hexane extracts	Mineral Oil	mg/L	5
	Animal & Vegetable Fat		30
Nitrogen		mg/L	120 (60)
Phosphorus		mg/L	16 (8)

Notes:
1. Allowable limits outside parenthesis are for a grab sample, values inside parenthesis are for a daily average.
2. All new sources of pollutants to waters: The 7-day or 14-day average will not exceed 45 mg/L
   The 30-day average will not exceed 30 mg/L
3. Existing sources of pollutants to water: The 7-day or 14-day average will not exceed 65 mg/L
   The 30-day average will not exceed 45 mg/L

TABLE 4-3
MONITORING FREQUENCY REQUIREMENT FOR TABLE 4-2

Plant Capacity	Monitoring Frequency
3000 m^3/day or more	Once a week
1000 m^3/day or more but less than 3000 m^3/day	Once in 2 weeks
500 m^3/day or more but less than 1000 m^3/day	Once a month
Less than 500 m^3/day	Once a quarter

TABLE 4-4
MONITORING REQUIREMENT EFFLUENT STANDARDS (HAZARDOUS SUBSTANCES) FOR DIRECT DISCHARGE FROM NON-DOMESTIC SOURCES INCLUDING INDUSTRIAL WASTEWATER TREATMENT PLANTS

Substances	Allowable Limit for Grab Sample (mg/L)
1. Cadmium	0.1
2. Cyanogen	1
3. Organic Phosphorus Compounds	1
4. Lead	0.1
5. Chromium (VI)	0.5
6. Arsenic	0.5
7. Total mercury	0.005
8. Alkyl mercury compounds	not detected
9. PCB	0.003
10. Trichloroethylene	0.3
11. Tetrachloroethylene	0.1
12. Dichloromethane	0.2
13. Carbon tetrachloride	0.02
14. 1,2-dichloroethane	0.04
15. 1,1-dichloroethylene	0.2
16. *cis*-1,2-dichloroethylene	0.4
17. 1,1,1-trichloroethane	3
18. 1,1,2-trichloroethane	0.06
19. 1,3-dichloropropane	0.02
20. Thiuram	0.06
21. Simazine	0.03
22. Thiobencarb	0.2
23. Benzene	0.1
24. Total selenium	0.1
25. Silver	1.2

TABLE 4-5
EFFLUENT LIMITS OF INDIRECT DISCHARGES

Substance or Item	Effluent Limits
pH	5-9
BOD_5	600 mg/L
TSS	600 mg/L
Normal hexane extracts: Mineral Oil:	5 mg/L
Animal and Vegetable Fat:	30 mg/L

Allowable limits are for a grab sample.